KIPS ENTRY TESTS PREPARATION

NMDCAT

FINAL SESSION PAPER–2

Total MCQs: 200 **Max. Marks: 200**

BIOLOGY

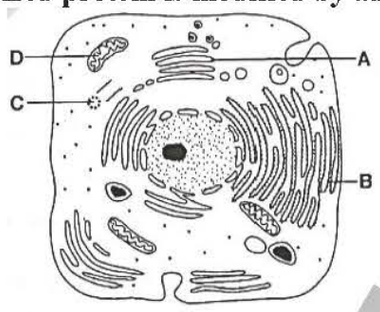
Q.1 Bacterial cell wall is composed of specialized biological molecule which is:

a. Chitin
b. Hemi-cellulose
c. Cellulose
d. Peptidoglycan

Q.2 Which of the following cell structure contains the highest concentration of RNA?

a. Centriole
b. Chromosome
c. Lysosome
d. Nucleolus

Q.3 The diagram shows the ultra-structure of a cell. In which cell component is a newly synthesized protein is modified by adding carbohydrate?



Q.4 Which of following shows correctly the structures which are found in eukaryotic cell?

	Nuclear Membrane	Mitochondria	Ribosomes
a.	×	×	×
b.	×	✓	×
c.	✓	×	×
d.	✓	✓	✓

Q.5 Glycolipids in the plasma membrane are located at:

a. Inner leaflet of the plasma membrane
b. The outer leaflet of the plasma membrane
c. Evenly distributed in the inner and outer leaflets
d. It varies according to cell types

Q.6 According to fluid mosaic model, cell membrane is made of:

a. Single lipid layer
b. Two lipid layers
c. Four protein layers
d. Two protein layers

Q.7 Which of the following would be more prominent in a secretory cell than in a non-secretory cell?

a. Golgi apparatus
b. Mitochondria
c. Pinocytotic vesicles
d. Ribosomes

Q.8 Identify a reducing sugar from the following examples:

a. Lactose
b. Sucrose
c. Cellulose
d. Starch

Q.9 Hydrolysis is possible for all the following types of carbohydrates except:

a. Monosaccharides
b. Disaccharides
c. Oligosaccharides
d. Polysaccharides

Q.10 Amino acids mainly differ due to the type or nature of:

a. Alpha carbon
b. Carboxylic group attached with α-carbon
c. Amino group attached with α-carbon
d. R-group

Q.11 The maximum number of fatty acids that can form ester linkage with one molecule of glycerol is/are:

a. 1
b. 2
c. 3
d. 4

Q.12 The diameter of DNA molecule is constant because of:
a. Two polynucleotide chains
b. Purines are always forming H-bonds with pyrimidine
c. Sugar-phosphate backbone
d. High molecular weight

Q.13 Phospholipids are derivatives of:
a. Diacylglycerol
b. Triacylglycerol
c. Phosphatidic acid
d. Lecithin

Q.14 _____ states that active site of an enzyme is flexible and when a substrate combines with it, causes change in enzyme structure is known as.
a. Lock and key model
b. Sliding filament model
c. Induce fit model
d. Specificity model

Q.15 In a naturally occurring biological reaction, if all active sites are occupied, then rate of reaction would be:
a. Minimum and constant
b. Maximum and accelerating
c. Zero and constant
d. Constant and maximum

Q.16 Increase in heat energy above optimum value decreases enzyme activity due to increased:
a. Collisions
b. Vibrations
c. Activation
d. Solubility

Q.17 A graph plotted, showing absorption of different wavelengths of light by a pigment is called:
a. Photosynthetic spectrum
b. Pigment spectrum
c. Absorption spectrum
d. Action spectrum

Q.18 These are said to the high energy respiratory substrates:
a. Carbohydrates
b. Lipids
c. Proteins
d. Nucleic acids

Q.19 The photosynthetic pigments of plants are arranged as clusters in thylakoid membranes. The reaction centers of these clusters consist of _____ molecules.
a. ATP
b. Chlorophyll
c.Glucose
d. Carotenoids

Q.20 Photosystem I has chlorophyll 'a' molecules which absorb maximum light of:
a. 680 nm
b. 780 nm
c. 700 nm
d. 580 nm

Q.21 Which of the following step of Krebs cycle involves substrate level phosphorylation?
a. Isocitrate to α-ketogluterate
b. α-ketoglutarate to succinate
c. Succinate to fumarate
d. Malate to oxaloacetate

Q.22 During chemiosmosis, ATPs are formed when H^+ move:
a. Actively from cytoplasmic matrix to inter membranous space
b. Actively from inter membranous space to cytoplasmic matrix
c. Passively from inter membranous space to mitochondrial matrix
d. Passively from mitochondrial matrix to inter membranous space

Q.23 Viruses are resistant to all of the following except:
a. Penicillin
b. Streptomycin
c. Tetracycline
d. Interferon

Q.24 Which of the following type of T-cells have CD4 receptors?
a. Cytotoxic T cells
b. Suppressor T cells
c. Helper T cells
d. Plasma cells

Q.25 Sites for reverse transcription and transcription during HIV life cycle are:

	Reverse transcription	Transcription
a.	Cytoplasm	Cytoplasm
b.	Cytoplasm	Nucleus
c.	Nucleus	Cytoplasm
d.	Nucleus	Nucleus

Q.26 Which of the following option is true about a virion?

a. Lytic phage
b. Lysogenic phage
c. The viral capsid
d. An infectious and fully formed viral particle

Q.27 Which of the following is not component of extracellular matrix in bacteria?
a. Cell wall
b. Capsule
c. Cell membrane
d. Slime

Q.28 _____ causes coagulation of proteins and kills the microbes.
a. Dry heat
b. Incineration
c. Moist heat
d. Gamma rays

Q.29 Cellulose is not present in cell wall of:
a. Algae
b. Slime molds
c. Fungi
d. Plants

Q.30 Cause of African sleeping sickness is *Trypanosoma*. It belongs to:
a. Protozoa
b. Arthropoda
c. Cnidaria
d. Platyhelminthes

Q.31 Kingdom plantae include:
a. Photosynthetic organisms
b. Multi-cellular eukaryotes
c. Seed-less and seeded plants
d. All a, b, c

Q.32 The first plants to colonize land were:
a. Bryophytes
b. Pteridophytes
c. Tracheophytes
d. Sporophyte

Q.33 The function of coelom is:
a. To increase the size of the animals
b. To help in the functioning of the reproductive system
c. To provide space for the development of organs and systems
d. To separate layers cells

Q.34 The absorbed water can rise to highest point by:
a. Root pressure
b. Imbibition force
c. Force of capillary
d. Transpiration pull

Q.35 Bicuspid valve controls the flow of blood from:
a. Right atrium to right ventricle
b. Right ventricle to pulmonary artery
c. Left ventricle to aorta
d. Left atrium to left ventricle

Q.36 Bicuspid valve is:
a. Right ventricular inlet
b. Left ventricular inlet
c. Right ventricular outlet
d. Left ventricular outlet

Q.37 In _____, every cell is in direct contact with a capillary.
a. Kidneys
b. Pancreas
c. Brain
d. Liver

Q.38 The flow of lymph in lymphatic vessels is maintained by:
a. Heart, activity of smooth muscles and valves
b. Activity of skeletal muscles, heart and breathing movements
c. Breathing movements, activity of skeletal muscles and valves
d. Exercise, breathing movements and heart

Q.39 Mucous membranes are part of body defense system and they offer:
a. Physical Barriers
b. Mechanical Barriers
c. Chemical Barriers
d. Biological Barriers

Q.40 Now-a-days every new born gets regular shots of vaccine for polio. It contains _____ for polio to make a child immune against this disease.
a. Antisera
b. Antibodies
c. Antibiotics
d. Antigens

Q.41 Plasma cells are important for immunity because they:
a. Phagocytose antigen
b. Secrete antibodies
c. Produce cell mediated response
d. Form 1st defense line of body

Q.42 Glomerulus circulates blood through capsule as it arrives through:
a. Bowman's capsule
b. Afferent arteriole
c. Efferent arteriole
d. Peritubular capillaries

Q.43 Tubular secretion is mainly to balance:
a. Urea
b. Na^+
c. pH
d. Water

Q.44 Renal failure is caused particularly due to damage of:
a. Renal corpuscle
b. Renal tubules
c. Collecting tubules
d. Ureter & bladder

Q.45 All of the following are involved in heat production in mammals except:
a. Muscle contractions
b. Thyroid hormones
c. Brown fat
d. Sub-dermal fat

Q.46 Urethral sphincter is made of:
a. Smooth muscles only
b. Skeletal muscles only
c. Both smooth and skeletal muscles
d. Neither smooth nor skeletal muscles

Q.47 Binding sites for cross bridges are located on:
a. Actin
b. Myosin
c. Tropomyosin
d. Calcium

Q.48 Myosin tail consists of _____ polypeptide chains coiled together.
a. 1
b. 2
c. 3
d. 4

Q.49 ATP at level of muscle cell is required to:
a. Release Ca^{+2}
b. Slide actin
c. Attach cross bridges
d. Detach cross bridges

Q.50 Which of the following can transmit nerve impulses from receptors to central nervous system?
a. Sensory neurons
b. Associated neurons
c. Motor neurons
d. All of these

Q.51 Which of the following statement is incorrect for node of Ranvier?
a. These are related with myelin sheath
b. These are formed by Schwann cells
c. These are found around all neurons
d. These allow salutatory impulse

Q.52 A bipolar neuron has:
a. 2 axons and 1 dendrite
b. 2 axons and 2 dendrites
c. 2 dendrites and 1 axon
d. 1 dendrite and 1 axon

Q.53 A hormone that has role in sperm production in humans is:
a. FSH
b. LH
c. ICSH
d. Prolactin

Q.54 Thyroxin is another name used for:
a. Tri-iodothyronine
b. Tetra-iodothyronine
c. Calcitonin
d. Parathormone

Q.55 Daily rhythms are usually associated with:
a. Hypothalamus
b. Pituitary gland
c. Thymus gland
d. Pineal gland

Q.56 Ovulation in the human female normally takes place:
a. Just before the end of the secretory phase
b. At the beginning of the proliferative phase
c. At the end of the proliferative phase
d. At the mid secretory phase

Q.57 All are functions of estrogen except:
a. Proliferation in endometrium
b. Vascularization of endometrium
c. Inhibition of FSH
d. Secretion of FSH

Q.58 Progesterone is secreted from:
a. Hypothalamus and anterior pituitary
b. Anterior pituitary and ovary
c. Anterior and posterior pituitary
d. Corpus luteum and placenta

Q.59 A child has blood group 'O' while his mother is with 'A' and father with 'B' blood group. Which of the following may be correct in this context?
a. Mother homozygous, father heterozygous
b. Mother heterozygous, father homozygous
c. Both mother and father are homozygous
d. Both mother and father are heterozygous

Q.60 Which of the following combination show carrier female for haemophilia?
a. X^HX^H
b. X^hX^h
c. X^hY
d. X^HX^h

Q.61 The X- linked recessive trait are:
a. Expressed in males only
b. Expressed in females only
c. More common in males than in females
d. More common is females than in males

Q.62 If round seeded pea plant is crossed with wrinkled seeded pea plant and all plants in F_1 are round seeded then we can infer that in P_1 there is:
a. Homozygous round
b. Heterozygous round
c. Heterozygous wrinkled
d. Hemizygous wrinkled

Q.63 In ABO blood group system, _____ blood group is always homozygous.
a. A
b. B
c. AB
d. O

Q.64 How many linkage groups are present in humans?
a. 23
b. 44
c. 46
d. 13

Q.65 It is the basic unit of eukaryotic chromosome:
a. Centromere
b. Nucleosome
c. Chromatid
d. Centrosome

Q.66 Termination codons for protein synthesis are:
a. UGA, UAA and UAG
b. UAU, UAG and UUA
c. AAA, UUU and UGA
d. AUU, AUG and GUU

Q.67 The joining of Okazaki fragments is the function of:
a. DNA ligase
b. DNA helicase
c. Primase
d. DNA polymerase III

Q.68 A DNA template was found to contain 29% of adenine bases, the percent of G+C in this template will be:
a. 58%
b. 42%
c. 71%
d. 29%

Q.69 The two strands of the DNA double helix are held together by:
a. Hydrogen bonds
b. Hydrophobic bonds
c. Peptide bonds
d. Phosphodiester bonds

Q.70 Human cells contain about _____ different types of tRNA.
a. 20
b. 45
c. 61
d. 64

Q.71 Translocation of ribosome on mRNA from 5' → 3' is guided by:
a. Initiation factor
b. Elongation factor
c. Activating enzyme
d. Ribosomal enzyme

Q.72 Which one of the following is the attribute of Lamarckism?
a. Natural selection
b. Struggle for existence
c. Inheritance of acquired characteristics
d. Production of more individuals

Q.73 Prokaryotic characteristics like 70S ribosomes and circular DNA in mitochondria can be explained by which of the following hypotheses?
a. Natural selection
b. Modern evolution synthesis
c. Endosymbiont hypothesis
d. Catastrophism

Q.74 Pick the respiratory protein found in all aerobic organisms:
a. Cytochrome 'a'
b. Cytochrome 'b'
c. Cytochrome 'c'
d. Cytochrome 'f'

Q.75 A method in which DNA threads are chemically cut into pieces of different sizes is:
a. Sanger's method
b. Gel electrophoresis
c. Maxam Gilbert method
d. Vortex method

Q.76 Restriction enzyme EcoRI cleaves DNA at the sequence:
a. AAGCTT
b. AAGTTC
c. GTATATC
d. GAATTC

Q.77 Restriction endonucleases:
a. Are used in genetic engineering for ligating two DNA molecules
b. Are used for in *vitro* DNA synthesis
c. Are synthesized by bacteria as part of their defense mechanism
d. Are present in mammalian cells for degradation of DNA when the cell die

Q.78 The enzyme reverse transcriptase is basically:

a. DNA dependent DNA polymerase
b. DNA dependent RNA polymerase
c. RNA dependent DNA polymerase
d. RNA dependent RNA polymerase

Q.79 Taq polymerase is used in:

a. Bacterial cloning
b. PCR
c. Gene sequencing
d. Recombinant DNA technology

Q.80 More than _____ restriction enzymes have been isolated and out of which about _____ are frequently used in recombinant DNA technology.

a. 400, 20
b. 80, 600
c. 250, 400
d. 20, 400

CHEMISTRY

Q.81 Limiting reactant concept is one of the major applications in industry for controlling the amount of product and converting precious reactants completely into products, but the reactions to which this application makes no worth are

a. Redox reactions
b. Most of the metallic reactions
c. Extremely fast ionic reactions
d. Reversible reactions

Q.82 Which of the following has highest vapour pressure

a. Water
b. Glycerol
c. Mercury
d. Isopentane

Q.83 If volume of an ideal gas at 0°C is 546 cm^3, what is volume at 100°C

a. 566 cm^3
b. 646 cm^3
c. 746 cm^3
d. 846 cm^3

Q.84 Relative atomic mass of hydrogen is

a. 1.008 $gmol^{-1}$
b. 1.008 amu
c. 2.016 $gmol^{-1}$
d. 2.016 amu

Q.85 Oxidation number of sulphur in $S_2O_3^{2-}$

a. +6
b. +3
c. +4
d. +2

Q.86 $CH_3CH_2Br + CN^- \xrightarrow{aq.KOH} A + Br^-$

'A' in above reaction is

a. Ethane nitrile
b. Ethene
c. Propane nitrile
d. Ethanoic acid

Q.87 The Kc has following units for the reaction $H_{2(g)} + I_{2(g)} \quad 2HI$

a. mol^2dm^{-6}
b. No units
c. $moldm^{-3}$
d. $mol^{-2}dm^6$

Q.88 Equilibrium constant (Kc) for water can be represented as

a. $\frac{[H_3O]}{[H^+][OH^-]}$
b. $\frac{[H^+][OH^-]}{[H_2O]}$
c. $\frac{[H^+]}{[OH^-][H_2O]}$
d. $[H^+][OH^-]$

Q.89 The rate law for the reaction A + 2B → products is Rate = K[A][B]^2 when concentration of 'B' is increased from X to 3X by keeping the concentration of A constant. By what factor the rate of reaction will increase

a. 3
b. 9
c. 6
d. 27

Q.90 Along a period, atomic radius decreases. This gradual decrease in radius is due to

a. Increase in number of shells
c. Increase in number of protons in the nucleus
b. Melting and boiling point first increase then decrease
d. Melting and boiling point first decrease then increase

Q.91 Not a feasible reaction

a. $CuO + H_2 \longrightarrow Cu + H_2O$ b. $CuO + 2AgNO_3 \longrightarrow Cu(NO_3)_2 + Ag$

c. $2KBr + I_2 \longrightarrow 2KI + Br_2$ d. $Fe + H_2SO_4 \longrightarrow FeSO_4 + H_2$

Q.92 In transition elements the complexes are coloured due to the transition of unpaired electrons in the complex between low energy and high energy states. The transition metal which does not have this capability and has colourless compounds is

a. Ni b. Mn

c. Co d. Zn

Q.93 Which of the following pairs show resemblance in their valence shell orbital configuration

a. Ti, V b. Mn, Fe

c. Cr, Cu d. Cu, Sc

Q.94 Urea is prepared by

a. Dehydration of ammonium carbamate b. Dehydration of ammonium nitrate

c. Hydration of ammonia d. Dehydration of ammonium carbonate

Q.95 C_2H_5— O— C_2H_5 and C_4H_9OH are

a. Chain isomers b. Positional isomers

c. Metamers d. Functional group isomers

Q.96 $CH_3^{\bullet} + Cl^{\bullet} \longrightarrow CH_3 + Cl$

The above step proceed during chlorination reaction. It is

a. Initiation step b. Propagation step

c. Termination step d. Final step

Q.97 The catalyst which uses in case of hydrogenation at high temperature is

a. Ni b. Hg

c. Au d. Ag

Q.98 Ethyl bromide reacts with cyanide ion to produce

a. Ethyl amine b. Ethane

c. Ethan nitrile d. Propane nitrile

Q.99 Nitrophenol is derivative of

a. Alkane b. Carbolic acid

c. Bromobenzene d. Toluene

Q.100 Alkylation of benzene is the introduction of _____on benzene

a. $R-\overset{\overset{O}{\|}}{C}-O^-$ b. R–

c. $R-\overset{\overset{O}{\|}}{C}-$ d. $H-\overset{\overset{O}{\|}}{C}-$

Q.101 Which ester is formed when the alcohol CH_3CH_2OH is reacted with CH_3CO_2H?

a. Ethyl methanoate b. Ethyl ethanoate

c. Propyl ethanoate d. Methyl ethanoate

Q.102 If value of Azimuthal quantum number (l) is 1, the value of 'm' will be

a. +3, +2, +1, 0, -1, -2, -3 b. 0,1,2

c. 0,1,2,3 d. +1, 0, –1

Q.103 A neutral atom of an element has 2 electrons in the first energy level, 8 in the second energy level and 8 in the third energy level. This information does not necessarily tell us

a. The atomic number of the element

c. Chemical properties of elements

b. The total number of electrons in "s" orbitals

d. The number of neutrons in the nucleus of an atom of the element

Q.104 According to Lewis concept, which one is acid

a. NH_3 b. CH_4

c. $AlCl_3$ d. PH_3

Q.105 Dot and Cross model of Lewis implements on

a. Covalent molecules
b. Metals
c. Ionic compounds
d. Transition complexes

Q.106 Which equation shows lattice energy for the ionic compound is – 787kJ mol^{-1}

a. $Na_{(s)} + \frac{1}{2}Cl_{2(a)} \longrightarrow NaCl_{(s)}$
b. $Na_{(s)} + Cl_{(a)} \longrightarrow NaCl_{(s)}$
c. $Na^{+}_{(aq)} + Cl^{-}_{(aq)} \longrightarrow NaCl_{(aq)}$
d. $Na^{+}_{(g)} + Cl^{-}_{(g)} \longrightarrow NaCl_{(s)}$

Q.107 Which is not base catalyzed reaction of carbonyl compound like aldehyde

a. Addition of $NaHSO_3$
b. Haloform reaction
c. Addition with HCN
d. Addition of 2,4-DNPH

Q.108 The general formula of ketone family is

a. $C_nH_{2n-1}O$
b. $C_nH_{2n}O$
c. $C_nH_{2n+1}O$
d. $C_nH_{2n+2}O$

Q.109 Ethanal can be synthesized by the oxidation of

a. Ethanol
b. Ethanoic acid
c. Isopropyl alcohol
d. Methanol

Q.110 A and B reacts with Na gives H_2 gas and by reaction of both A and B ethyl acetate is formed then A and B are

a. CH_3COOH, C_2H_5OH
b. CH_3COOH, CH_3OH
c. C_3H_7COOH, C_3H_7OH
d. $HCOOH$, CH_3COOH

Q.111 In the following reaction, C and D are

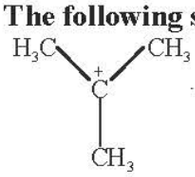
$CH_3 - CO - CH_2 - CH_2 - CH_3 + [O] \longrightarrow C + D$

a. $CH_3COOH + CH_3COOH$
b. $CH_3COOH + CH_3CH_2COOH$
c. $CH_3COOH + CH_3CH_2CH_3$
d. $HCHO + 2CH_3COOH$

Q.112 $R–CH_2 – CH_2OH$ can be converted into RCH_2CH_2COOH. The correct sequence of the reagents is

a. PBr_3, KCN, H_3O^+
b. HCN, PBr_3, H^+
c. PBr_3, KCN, N_2
d. KCN, H^+

Q.113 The following structure is of



a. Primary carbocation
b. Secondary carbocation
c. Tertiary carbocation
d. Primary carbonanion

Q.114 $CH_3 – CH = CH + HOX \longrightarrow$?

The dominant product formed in the above reaction is

a. $CH_3 - \underset{\underset{OH}{|}}{CH} - \underset{\underset{X}{|}}{CH_2}$
b. $CH_3 - \underset{\underset{X}{|}}{CH} - \underset{\underset{OH}{|}}{CH_2}$
c. $CH_3 - \underset{\underset{OX}{|}}{CH} - \underset{\underset{H}{|}}{CH_2}$
d. $CH_3 - \underset{\underset{H}{|}}{CH} - \underset{\underset{OX}{|}}{CH_2}$

Q.115 Alkenes are treated with Baeyer's reagent to produce

a. Halohydrin
b. Vicinal glycol
c. Ethylene glycol
d. Vicinal dihalide

Q.116 Alcohols are represented by general formula ROH, where R may be _____ in case of tertiary alcohol

a. $CH_3–$
b. $(CH_3)_3CCH_2–$
c. $(CH_3)_2CH–$
d. $(CH_3)_3C–$

Q.117 The 1.2×10^{24} molecules of 8g of a noble gas is enclosed in a cylinder fitted with moveable piston having 44.8dm^3 volume at STP conditions. The molar mass of the gas may be

a. 44gmol^{-1}
b. 32 gmol^{-1}
c. 16g mol^{-1}
d. 4g mol^{-1}

Q.118 The correct electronic configuration of C-atom in ground state is

a. $[He]2s^2, 2p_x^2, 2p_y^0, 2p_z^0$ b. $[Ne]2s^2, 2p_x^1, 2p_y^1, 2p_z^0$

c. $[He]2s^1, 2p_x^1, 2p_y^1, 2p_z^1$ d. $[He]2s^2, 2p_x^0, 2p_y^1, 2p_z^1$

Q.119 In which of the following electronic transitions, the photon of maximum energy is emitted

a. n = 7 to n = 6 b. n = 6 to n = 1

c. n = 3 to n = 1 d. n = 7 to n = 1

Q.120 The charge on cathode rays particle is always

a. Negative b. Positive

c. Neutral d. Dipositive

Q.121 A gas is enclosed in a cylinder having $2dm^3$ volume at 1 atm pressure at constant temperature. When this gas is transferred to a new cylinder under reduced pressure and at constant temperature, the volume of gas will

a. Increase b. Decrease

c. 1st Increase than decrease d. Remain constant

Q.122 In liquified methane gas the type of intermolecular forces is

a. Hydrogen bonding b. Dipole-Dipole forces

c. London dispersion forces d. Debye's forces

Q.123 Which of the following is an ionic solid?

a. CsF b. Sn

c. Diamond d. Glucose

Q.124 The smallest arrangement of particles in a crystal which represents characteristics of whole crystal lattice is referred as

a. Formula unit b. Unit cell

c. Structural unit d. Monomer

Q.125 The experimentally determined rate equation of following second order reaction is

$$NO_{2(g)} + NO_{2(g)} \xrightarrow{Slow} NO_{(g)} + NO_{3(g)}$$

$$NO_{3(g)} + CO_{(g)} \xrightarrow{Fast} NO_{2(g)} + CO_{2(g)}$$

a. Rate = $k[NO_2]^2$ b. Rate = $k[NO_2][CO]$

c. Rate = $k[CO]^2$ d. Rate = $k[NO_2][CO]^0$

Q.126 $\left[t_{\frac{1}{2}}\right]_n = \frac{1.5}{ka^2}$

The 'n' in above expression is

a. 1 b. 2

c. 3 d. 0

Q.127 The order of reaction can be calculated by method of large excess. Usually this method is applied on _____ type of reactions.

a. Zero order reactions b. Pseudo order reactions

c. Second order reactions d. Third order reactions

Q.128 Which of the following law is generally involved in thermochemistry

a. Law of mass action b. Law of conservation of energy

c. Law of conseration of mass d. Law of partition

Q.129

$$2NaOH_{(aq)} + CO_{2(g)} \longrightarrow Na_2CO_{3(aq)} + H_2O_{(l)} \qquad \Delta H = -89.08kJ$$

$$NaOH_{(aq)} + CO_{2(g)} \longrightarrow NaHCO_{3(aq)} \qquad \Delta H_1 = -48.6kJ$$

$$NaHCO_{3(aq)} + NaOH_{(aq)} \longrightarrow Na_2CO_{3(aq)} + H_2O_{(l)} \qquad \Delta H_2 = ?$$

ΔH_2 in above reaction is

a. –41.02 kJ b. +48.6kJ

c. +41.02kJ d. +89.08kJ

Q.130 Which of the following is powerful reducing agent

a. K b. H_2

c. Ag d. F_2

Q.131 In $CuSO_4.5H_2O$ the water molecules are bonded with cation through
a. Covalent bond
b. Dative bond
c. Ionic bond
d. Ion-dipole bonding

Q.132 The VSEPR theory predict the shape of water molecule as
a. V-shaped
b. T-shaped
c. M- shaped
d. Δ-shaped.

Q.133 Which of the following alkali metal can form simple / normal oxide with oxygen
a. Li
b. Na
c. K
d. Cs

Q.134 Aluminium does not completely react with atmospheric oxygen due to
a. Hard protective layer formed
b. Brittleness
c. High atomic mass
d. Metallic nature

Q.135 Minimum binding energy is expected in
a. V
b. Cr
c. Mn
d. Fe

Q.136 The most reactive alkyl halide towards SN reactions is
a. CH_3Br
b. CH_3CH_2Br
c. $CH_3CH_2CH_2Br$
d. $CH_3(CH_2)_2CH_2Br$

Q.137 Mostly enzymes are made up of pure
a. Proteins
b. Lipids
c. Carbohydrates
d. Saccharides

Q.138 The temperature at which enzyme can perform its maximum activity is called
a. Absolute temperature
b. Optimum temperature
c. Maximum temperature
d. Critical temperature

Q.139 The enzymatic reactions are usually
a. Zero order reactions
b. 2nd order reactions
c. 1st order reaction
d. 3rd order reacitons

Q.140 The correct IUPAC name of the following compound is

$$CH_3-\underset{\displaystyle C_2H_5}{\underset{|}{CH}}-C\equiv CH$$

a. 3-Ethyl-1-Butyne
b. 2-Ethyl-1-pentyne
c. 3-Methyl-1-pentyne
d. 3-Methyl pentane-1-yne

PHYSICS

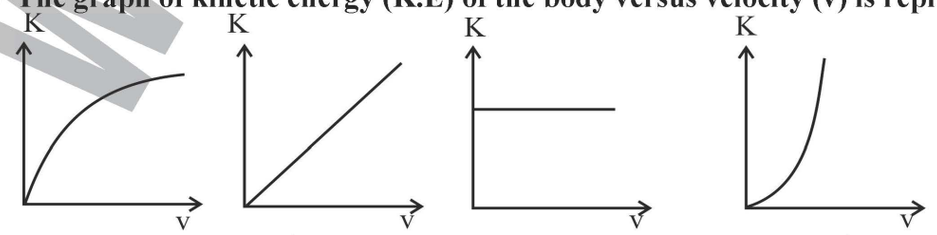
Q.141 A ball with original momentum +4.0 kg m/s hits a wall and bounces straight back without losing any kinetic energy. The change in momentum of the ball is:
a. +4Ns
b. –4Ns
c. $+8Ns^2$
d. –8Ns

Q.142 Range of a projectile on a horizontal plane is same for the following pair of angles:
a. 15° and 18°
b. 43° and 47°
c. 20° and 80°
d. 52° and 62°

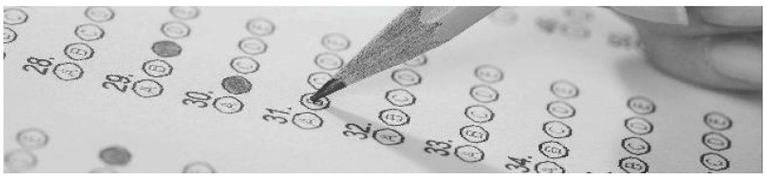
Q.143 When a body moves in a straight line then its displacement coincides with
a. Distance
b. Force
c. Acceleration
d. Both 'a' and 'b'

Q.144 At maximum height on the trajectory which of projectile becomes zero
a. Acceleration
b. Velocity
c. Vertical velocity
d. Horizontal velocity

Q.145 The graph of kinetic energy (K.E) of the body versus velocity (v) is represented by as



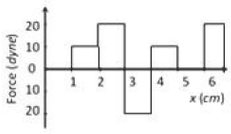
a. b. c. d.



Q.146 When a force is perpendicular to the direction of motion of the body, then work done on the body is

a. Zero
b. Negative
c. Infinity
d. Maximum

Q.147 The relationship between force and position is shown in the figure given (in one dimensional case). The work done by the force in displacing a body from x = 1 cm to x = 5 cm is



a. 60 ergs
b. 700 ergs
c. 70 ergs
d. 20 ergs

Q.148 A person having a mass of 60 kilograms exerts a horizontal force of 200 newtons in pushing a 90 kilogram object a distance of 6 meters along a horizontal floor. He does this at constant velocity in 3 seconds. The work done by person is

a. 540 J
b. 5400 J
c. 1080 J
d. 1200 J

Q.149 The direction of linear velocity of body moving in a circle is

a. Along the axis of rotation
b. Along the tangent
c. Directed towards the center
d. Directed away from the center

Q.150 A stone of mass 250 g is tied to the end of a string of length 1.0 m. It is whirled in a horizontal circle with a frequency of 30 rev./min. What is the tension in the string?

a. $\frac{\pi^2}{4}$N
b. $\frac{\pi^2}{2}$N
c. π^2N
d. $2\pi^2$N

Q.151 For a particle in a non-uniform accelerated circular motion

a. Velocity is radial and acceleration is transverse only
b. Velocity is transverse and acceleration is radial only
c. Velocity is transverse and acceleration has both radial and transverse components
d. Velocity is radial and acceleration has both radial and transverse components

Q.152 The angular speed in radians/hours for daily rotation of our earth is

a. 2π
b. 4π
c. $\frac{\pi}{6}$
d. $\frac{\pi}{12}$

Q.153 If time period and amplitude of oscillator is 16 sec and 5 cm respectively then time taken by oscillator to cover 15 cm distance starting from mean position at t = 0 sec

a. 4 sec
b. 8 sec
c. 12 sec
d. 16 sec

Q.154 A cylindrical tube, open at both ends, has fundamental frequency n. If one of the ends is closed, the fundamental frequency will become

a. n/2
b. n
c. 2 n
d. 4 n

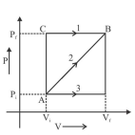
Q.155 At what temperature, the velocity of sound will be double its value at 273 K?

a. 2 × 273 K
b. 4 × 273 K
c. 8 × 273 K
d. 16 × 273 K

Q.156 If stretching force T of wire increases, then its frequency

a. Decreases
b. Increases
c. Remains the same
d. Any of above

Q.157 A system is taken from state A to B through three different paths 1, 2 and 3. The work done is maximum in



a. Process 1
b. Process 2
c. Process 3
d. B and A respectively

Q.158 If the volume of a gas is held constant and we increase its temperature then

a. Its pressure is constant
b. Its pressure rises
c. Its pressure falls
d. All of above

Q.159 A proton is about 1840 times heavier than electron. When it is accelerated by a potential difference of 1 KV, its kinetic energy will be

a. 1840 k eV
b. 1 k eV
c. 1/ 1840 k eV
d. 920 k eV

Q.160 Some charge is being given to a conductor. Then its potential

a. Is maximum at surface
b. Is maximum at center
c. Is same throughout the conductor
d. Is maximum somewhere between surface and center

Q.161 Equal amount of charge is given to two sphere A and B of radii 2cm and 3cm respectively. The potential V_A and V_B

a. $V_A = V_B$
b. $V_A < V_B$
c. $V_A > V_B$
d. depend upon number of material of sphere

Q.162 Two thin infinite parallel plates have uniform charge densities + σ and -σ . The electric field in the space between them is

a. $\sigma/2\varepsilon_0$
b. σ/ε_0
c. σ
d. Zero

Q.163 The resistance of a coil is 4.2 ohm at 100° C and the temperature coefficient of resistance of its material is 0.004/0 C. Its resistance at 0o C

a. 6.5 ohm
b. 5 ohm
c. 3 ohm
d. 4 ohm

Q.164 Calculate the amount of charge flowing in 2 minutes in a wire of resistance 10 W when a potential difference of 20 V is applied between its ends

a. 4 C
b. 20 C
c. 240 C
d. 120 C

Q.165 An electric iron is marked 20 volts 500W. The units consumed by it in using it for 24 hours will be

a. 12
b. 24
c. 5
d. 1100

Q.166 Internal resistance of ideal current source is

a. Zero
b. Mega ohm
c. Infinite
d. Few ohm

Q.167 Hot air from a hair-dryer contains many positively charged ions. The motion of these ions constitutes an electric current.

The hot air is directed between the poles of a strong magnet, as shown.
What happens to the ions? They are deflected

a. Towards the North pole N
b. Downwards
c. Towards the South pole S
d. Upwards

Q.168 The acceleration of an electron of mass m and charge e, moving with uniform speed v at right angles to a magnetic field of flux density B, is give by

a. $\frac{Bev}{m}$
b. $\frac{Be}{m}$
c. $\frac{Bv}{m}$
d. Bevm

Q.169 At what rate would it be necessary for a single conductor to cut the flux in order that current of 1.2 mA flows through it when 10 ohm resistor is connected across its ends?

a. 1.2Wb/s
b. 1.2×10^{-1}Wb/s
c. 1.2×10^{-2}Wb/s
d. 1.2×10^{-3}Wb/s

Q.170 In a transformer heat is produced due to eddy current in

a. Primary coil
b. Secondary coil
c. Iron core
d. All of these

Q.171 A device which converts mechanical energy into electrical energy is called

a. Motor
b. Inductor
c. Transformer
d. Current generator

Q.172 The induced emf in a coil is proportional to
a. Magnetic flux through coil
b. Rate of change of magnetic flux through coil
c. Area of the coil
d. Product of area of coil and magnetic flux

Q.173 The diodes work on
a. A.C
b. Both "a" and "b"
b. D.C
d. None of these

Q.174 In the process of rectification with filter circuit, the voltage received across the load resistance is
a. Pulsating DC
b. Smooth AC
c. Smooth DC
d. Pulsating AC

Q.175 A particle of mass 5.0mg moves with speed of $8ms^{-1}$. Find de Broglie wavelength.
a. 1.66×10^{-29}m
b. 4.66×10^{-27}m
c. 3.66×10^{-28}m
d. 1.66×10^{-30}m

Q.176 Typically, the wavelength of electrons is about_____shorter then those of the visible light used in optical microscope.
a. 200 times
b. 500 times
c. 100 times
d. 300 times

Q.177 The radiations emitted from hydrogen filled discharge tube show_____
a. Band spectrum
b. Line spectrum
c. Continuous spectrum
d. None

Q.178 Radio isotopes of Co^{60} which emit _____
a. Beta particle
b. High energy gamma rays
c. Alpha rays
d. Both 'a' and 'b'

Q.179 A radioactive substance is at t=0, the number of atoms is 8×10^4. Its half-life period is 3 years. The number of atoms 1×10^4 will remain after interval
a. 19 years
b. 24 years
c. 9 years
d. 6 years

Q.180 Which of the following is not a mode of radioactive decay?
a. Alpha decay
b. Electron capture
c. Fusion
d. Positron emission

ENGLISH

Directions:
In the following sentences, some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected.

Q.181 Of the twenty students, as much as ten have failed.
a. b. c. d.

Q.182 We should be thankful if you will remit the money immediately which you borrowed.
a. b. c. d.

Q.183 Being that you are interested in the outcome of the elections, let us wait till the final tally has been made.
a. b. c. d.

Q.184 There was only a bread and two bottles of milk in the refrigerator when we came back after a weekend in Kaghan.
a. b. c. d.

Q.185 The Germans were called baby-killers and their methods of warfare stigmatized as a reproach for civilization.
a. b. c. d.

Q.186 He was congratulated by his teacher on his brilliant success in the recent examination. Choose the correct Active Voice.
a. His teacher had congratulated him on his brilliant success in recent examination.
b. He congratulated by his teacher in recent examination on his brilliant success.
c. His teacher congratulated him on his brilliant success in the recent examination.
d. His teacher was congratulated by him in the examination on his brilliant success.

Q.187 He said to him, "Thank you for your kind help." Choose the correct Indirect.
a. He told him for his kind help.
b. He requested him for his kind help.
c. He asked him for his kind help.
d. He thanked him for his kind help.

Directions:

In each question in the following, four alternative sentences are given. Choose the CORRECT one and fill the circle corresponding to that letter in the answer sheet.

Q.188

a. Don't hold this dirty insect in your hand throw it away.
b. Don't hold this dirty insect in your hand; throw it away.
c. Don't hold this dirty insect in your hand, throw it away.
d. Don't hold this dirty insect in your hand just throw it away.

Q.189

a. They favor individual liberty and consider the infliction of suffering on innocent as unintelligible.
b. They favor individual liberty and consider the infliction of suffering on the innocent to be unintelligible.
c. They favor individual liberty and consider the infliction of suffering on innocent to be unintelligible.
d. They favor individual liberty and consider the infliction of suffering on the innocent as unintelligible.

Q.190

a. At the party I encountered Edward. Conversations with whom were always entertaining.
b. At the party I encountered Edward, conversations with whom were always entertaining.
c. At the party I encountered Edward, conversations with him were always entertaining.
d. At the party I encountered Edward, conversations with that were always entertaining.

Q.191 The more positive your attitude, the quicker your recovery will be. Identify the Sentence.

a. Simple
b. Compound
c. Complex
d. Compound Complex

Q.192 The king wore a crown <u>made of gold</u>. Identify the underlined phrase.

a. Verb Phrase
b. Adjective Phrase
c. Adverb Phrase
d. Noun Phrase

Q.193 <u>Although he is poor</u>, he is honest. Identify the underlined clause.

a. Adverb Clause of Comparison
b. Adverb Clause of Purpose
c. Adverb Clause of Reason
d. Adverb Clause of Concession

Q.194 It is <u>but</u> right to admit our fault. Identify the Part of speech of the underlined word.

a. Preposition
b. Adverb
c. Conjunction
d. Pronoun

Directions:

Choose the right option to complete the following sentences.

Q.195 _____ a small company.

a. Ours are
b. Our's is
c. Ours is
d. Our's are

Q.196 Despite being over eighty, my grandmother has a great _____for life that allows her to live like a carefree teenager.

a. Regret
b. Qualm
c. Zest
d. Prerogative

Q.197 What is the Synonym of "UNPROVOKED"?

a. Aggravated
b. Irreprehensible
c. Malicious
d. Irreproachable

Q.198 What is the **Synonym** of **"NUISANCE"?**

a. Bliss
b. Scourge
c. Boon
d. Innovation

Q.199 What is the Antonym of "NEMESIS"?

a. Indemnity
b. Naivety
c. Pitfall
d. Impudence

Q.200 What is the Antonym of "ON THE WRONG FOOT"?

a. Ambiguous
b. Inauspicious
c. Expeditious
d. Providential